

wherein X represents a residual group of a color coupler; A represents -NR⁴R⁵ or a hydroxy group; R⁴ and R⁵ each independently represents a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; B¹ represents =C(R⁶)- or =N-; B² represents -C(R⁷)= or -N=; R², R³, R⁶ and R⁷ each independently represent a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano group, -OR⁵¹, -SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, -SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴, -NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹; R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸, R⁶⁹, R⁷⁰ and R⁷¹ each independently represents a hydrogen atom, aliphatic group or aromatic group; and any of pairs, R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bond together to form a ring structure;

wherein the ionic group-containing polymer is a vinyl polymer; and

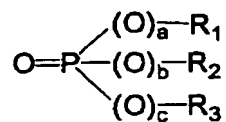
wherein the content of the hydrophobic high-boiling-point organic solvent in the coloring composition is at least 25% by mass and not more than 95% by mass with respect to a total amount of the ionic-group-containing polymer, the oil-soluble dye, and the hydrophobic high-boiling-point organic solvent.

A²

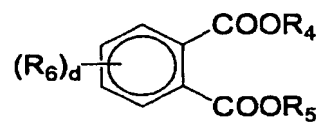
5. (Amended) An ink-jet ink according to claim 1, wherein the ionic-group-containing vinyl polymer has at least one ionic group selected from the group consisting of carboxyl groups, sulfonic acid groups and mixtures thereof.

6. (Amended) An ink-jet ink according to claim 1, wherein the hydrophobic high-boiling-point organic solvent is at least one hydrophobic high-boiling-point organic solvent selected from the group consisting of hydrophobic high-boiling-point organic solvents represented by following formulae S-1 to S-9:

As
cont.
Formula [S - 1]



Formula [S - 2]



Formula [S - 3]



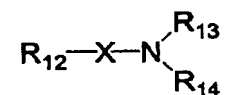
Formula [S - 4]



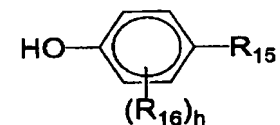
Formula [S - 5]



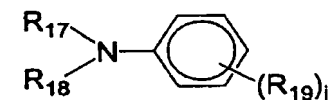
Formula [S - 6]



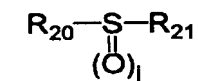
Formula [S - 7]



Formula [S - 8]



Formula [S - 9]



A2
cont.
wherein: in the formula S-1, R_1 , R_2 and R_3 each independently represents an aliphatic group or an aryl group, and a, b and c each independently represents 0 or 1;

in the formula S-2, R_4 and R_5 each independently represents an aliphatic group or an aryl group, R_6 represents a fluorine atom, chlorine atom, bromine atom, iodine atom, alkyl group, alkoxy group, aryloxy group, alkoxycarbonyl group or aryloxycarbonyl group, d represents an integer from 0 to 3, and where d is more than 1, one R_6 may be different from another R_6 ;

in the formula S-3, Ar represents an aryl group, e represents an integer from 1 to 6, and R_7 represents an e-valent hydrocarbon group or a hydrocarbon group that is mutually bonded by an ether bond;

in the formula S-4, R_8 represents an aliphatic group, f represents an integer from 1 to 6, and R_9 represents an f-valent hydrocarbon group or a hydrocarbon group that is mutually bonded by an ether bond;

in the formula S-5, g represents an integer from 2 to 6, R_{10} represents a g-valent hydrocarbon group other than an aryl group, and R_{11} represents an aliphatic group or an aryl group;

in the formula S-6, R_{12} , R_{13} and R_{14} each independently represents a hydrogen atom, aliphatic group or aryl group, X represents or -N-CO- or -SO₂-, and one of a pair R_{12} and R_{13} or R_{13} and R_{14} may bond together mutually to form a ring;

in the formula S-7, R_{15} represents an aliphatic group, alkoxycarbonyl group, aryloxycarbonyl group, alkylsulfonyl group, arylsulfonyl group, aryl group or cyano group, R_{16} represents a fluorine atom, chlorine atom, bromine atom, iodine atom, aliphatic

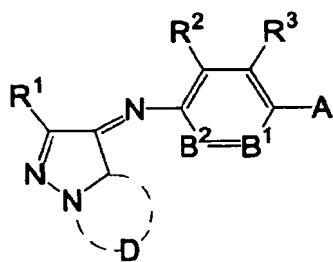
A²
cont.
group, aryl group, alkoxy group or aryloxy group, h represents an integer from 0 to 3, and where h is more than 1, one R₁₆ may be different from another R₁₆;

in the formula S-8, R₁₇ and R₁₈ each independently represents an aliphatic group or an aryl group, R₁₉ represents a fluorine atom, chlorine atom, bromine atom, iodine atom, aliphatic group, aryl group, alkoxy group or aryloxy group, i represents an integer from 0 to 4, and where i is more than 1, one R₁₉ may be different from another R₁₉; and

in the formula S-9, R₂₀ and R₂₁ each independently represents an aliphatic group or aryl group, and j represents 1 or 2.

A³
10. (Amended) An ink-jet ink according to claim 1, wherein the oil-soluble dye which is represented in said general formula I is a compound which is represented in the following general formula II:

General Formula II



wherein, R², R³, A, B¹, and B² are synonymous with R², R³, A, B¹, and B² in said general formula I;

A3
cont.
R¹ represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, -OR¹¹, -SR¹², -CO₂R¹³, -OCOR¹⁴, -NR¹⁵R¹⁶, -CONR¹⁷R¹⁸, -SO₂R¹⁹, -SO₂NR²⁰R²¹, -NR²²CONR²³R²⁴, -NR²⁵CO₂R²⁶, -COR²⁷, -NR²⁸COR²⁹ or -NR³⁰SO₂R³¹;

R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵, R²⁶, R²⁷, R²⁸, R²⁹, R³⁰, and R³¹ represent respectively independently a hydrogen atom, an aliphatic group or an aromatic group;

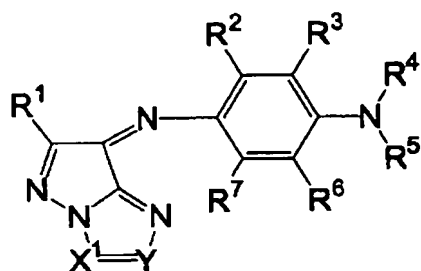
D represents an atom group which forms a five-membered nitrogen-containing heterocyclic ring or a six-membered nitrogen-containing heterocyclic ring which may optionally be substituted by an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, -OR⁸¹, -SR⁸², -CO₂R⁸³, -OCOR⁸⁴, -NR⁸⁵R⁸⁶, -CONR⁸⁷R⁸⁸, -SO₂R⁸⁹, -SO₂NR⁹⁰R⁹¹, -NR⁹²CONR⁹³R⁹⁴, -NR⁹⁵CO₂R⁹⁶, -COR⁹⁷, -NR⁹⁸COR⁹⁹ or -NR¹⁰⁰SO₂R¹⁰¹;

the heterocyclic ring may further form a condensed ring with another ring; and

R⁸¹, R⁸², R⁸³, R⁸⁴, R⁸⁵, R⁸⁶, R⁸⁷, R⁸⁸, R⁸⁹, R⁹⁰, R⁹¹, R⁹², R⁹³, R⁹⁴, R⁹⁵, R⁹⁶, R⁹⁷, R⁹⁸, R⁹⁹, R¹⁰⁰, and R¹⁰¹ represent respectively independently a hydrogen atom, an aliphatic group or an aromatic group.

11. (Amended) An ink-jet ink according to claim 10, wherein the compound which is represented in said general formula II is a compound which is represented in the following general formula III:

General formula III



wherein, R¹, R², R³, R⁴, R⁵, R⁶, and R⁷ are synonymous with R¹, R², R³, R⁴, R⁵, R⁶,

and R⁷ in said general formula II;

X¹ and Y represent respectively independently -C (R⁸) = or -N=;

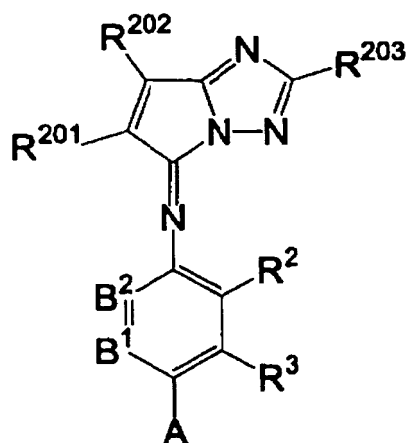
R⁸ represents a hydrogen atom, an aliphatic group, or an aromatic group; and

one of X¹ or Y is always -N=, and X¹ and Y are -N= at different times.

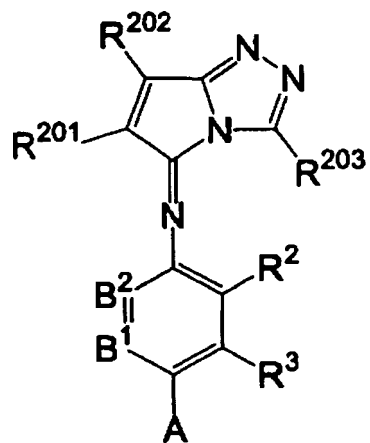
12. (Amended) An ink-jet ink according to claim 1, wherein the oil-soluble dye which is represented in said general formula I is at least one compound selected from the group consisting of compounds which are represented in the following formulas IV-1 to IV-4:

A3
cont.

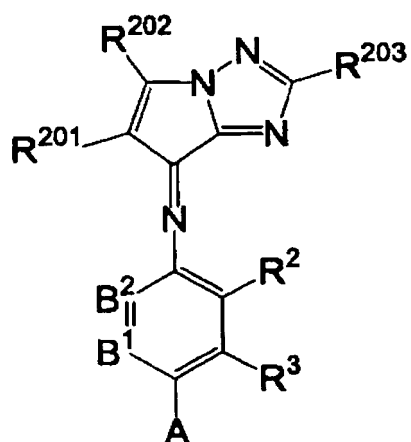
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cont.



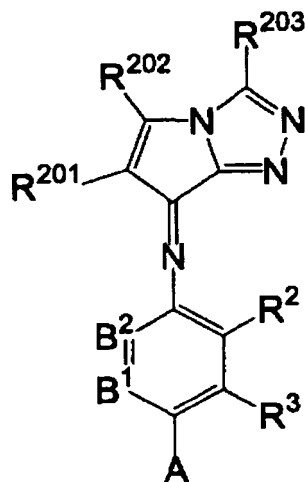
(IV-1)



(IV-2)



(IV-3)



(IV-4)

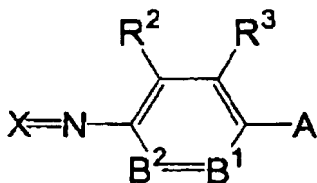
A3
Cont.
wherein, A, R², R³, B¹, and B² are synonymous with A, R², R³, B¹, and B² in said general formula I;

R²⁰¹, R²⁰², and R²⁰³ represent respectively independently a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, -OR¹¹, -SR¹², -CO₂R¹³, -OCOR¹⁴, -NR¹⁵R¹⁶, -CONR¹⁷R¹⁸, -SO₂R¹⁹, -SO₂NR²⁰R²¹, -NR²²CONR²³R²⁴, -NR²⁵CO₂R²⁶, -COR²⁷, -NR²⁸COR²⁹ or -NR³⁰SO₂R³¹;

R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵, R²⁶, R²⁷, R²⁸, R²⁹, R³⁰, and R³¹ represent respectively independently a hydrogen atom, an aliphatic group or an aromatic group; and

R²⁰¹ and R²⁰² may be combined with each other to form a ring structure.

13. (Amended) A coloring composition comprising a coloring particulate containing an ionic-group-containing polymer, an oil-soluble dye, and a hydrophobic high-boiling-point organic solvent having a boiling point of at least 150°C, the coloring particulate being dispersed in a water-based medium, wherein the oil-soluble dye is represented by general formula I:



wherein X represents a residual group of a color coupler; A represents -NR⁴R⁵ or a hydroxy group; R⁴ and R⁵ each independently represents a hydrogen atom, aliphatic group,

A3
cont.

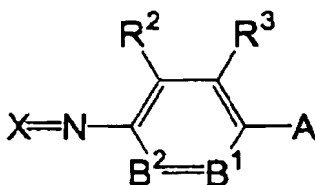
aromatic group or heterocyclic group; B¹ represents =C(R⁶)- or =N-; B² represents -C(R⁷)= or -N=; R², R³, R⁶ and R⁷ each independently represent a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano group, -OR⁵¹, -SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, -SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴, -NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹; R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸, R⁶⁹, R⁷⁰ and R⁷¹ each independently represents a hydrogen atom, aliphatic group or aromatic group; and any of pairs, R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bond together to form a ring structure;

wherein the ionic group-containing polymer is a vinyl polymer; and

wherein the content of the hydrophobic high-boiling-point organic solvent in the coloring composition is at least 25% by mass and not more than 95% by mass with respect to a total amount of the ionic-group-containing polymer, the oil-soluble dye, and the hydrophobic high-boiling-point organic solvent.

14. (Amended) An ink-jet recording method in which recording is conducted using an ink-jet ink on a recording material, the ink comprising a coloring composition containing a coloring particulate containing an ionic-group-containing polymer, an oil-soluble dye, and a hydrophobic high-boiling-point organic solvent having a boiling point of at least 150°C, the coloring particulate being dispersed in a water-based medium, wherein the oil-soluble dye is represented by

general formula I:



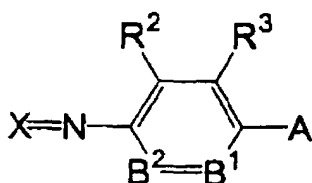
wherein X represents a residual group of a color coupler; A represents -NR⁴R⁵ or a hydroxy group; R⁴ and R⁵ each independently represents a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; B¹ represents =C(R⁶)- or =N-; B² represents -C(R⁷)= or -N=; R², R³, R⁶ and R⁷ each independently represent a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano group, -OR⁵¹, -SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, -SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴, -NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹; R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸, R⁶⁹, R⁷⁰ and R⁷¹ each independently represents a hydrogen atom, aliphatic group or aromatic group; and any of pairs, R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bond together to form a ring structure;

wherein the ionic group-containing polymer is a vinyl polymer; and

wherein the content of the hydrophobic high-boiling-point organic solvent in the coloring composition is at least 25% by mass and not more than 95% by mass with respect to a total amount of the ionic-group-containing polymer, the oil-soluble dye, and the hydrophobic high-boiling-point organic solvent.

17. (Amended) An ink-jet recording method comprising the step of:

A4
(a) preparing an ink-jet ink containing a coloring composition in which a coloring particulate containing an ionic-group-containing polymer, an oil-soluble dye, and a hydrophobic high-boiling-point organic solvent having a boiling point of at least 150°C are dispersed in an aqueous medium, wherein the oil-soluble dye is represented by general formula I:



wherein X represents a residual group of a color coupler; A represents -NR⁴R⁵ or a hydroxy group; R⁴ and R⁵ each independently represents a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; B¹ represents =C(R⁶)- or =N-; B² represents -C(R⁷)= or -N=; R², R³, R⁶ and R⁷ each independently represent a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano group, -OR⁵¹, -SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, -SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴, -NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹; R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸, R⁶⁹, R⁷⁰ and R⁷¹ each independently represents a hydrogen atom, aliphatic group or aromatic group; and any of pairs, R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ may bond together to form a ring structure;

wherein the ionic group-containing polymer is a vinyl polymer; and

A4
cont.
with the content of the hydrophobic high-boiling-point organic solvent in the coloring composition being at least 25 % by mass and not more than 95 % by mass with respect to total amount of the ionic-group-containing polymer, the oil-soluble dye, and the hydrophobic high-boiling-point organic solvent,

- (b) disposing the ink-jet ink in a cartridge adapted for use in an ink-jet printer, and
 - (c) using the cartridge in an ink jet printer for recording images.
-